

ABSTRACT

This patent describes stalk rolls for use in corn head row units. The environmentally friendly stalk rolls improve entry and increase engagement of the fluted portion of the stalk roll with the corn stalk. The stalk rolls described are multi-sectional and contain multi-length variable flutes. The various embodiments of the penetrating stalk rolls may be mounted with or without nose bearings. The number of flutes described for each zone may vary as well as whether the flutes are meshing or non-meshing and angled or non-angled. The stalk rolls described allow a constant speed drive shaft to create lower and/or higher effective circumferential contact speeds within each zone of the stalk roll. The stalk rolls described work to allow smooth uninterrupted improved flow of corn stalk material through the ear separation chamber and are designed to be environmentally friendly by ensuring that the corn plant remains connected to its original root system which prevents it from blowing or washing away. The processing of the corn plant by the improved tapered flutes of the stalk rolls effectively mutilates the corn stalk by the described penetrating, pinching and pulling actions, however, substantially all of the plants are still attached to their root systems and remain relatively intact even though their stalks have been punctured and crimped multiple times. The tapered design of knife edged stalk roll flutes takes advantage of the inherent taper found in corn plant stalks. This novel row unit contains a multi-zone, multi-functional stripper plate that ensures minimal ear wedging and maximum discharge of material other than ears. These stalk rolls may be used with the previously disclosed corn row unit or in combination with the existing corn row units found in the prior art.